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Planning Production and Control of Materials

By E. W. CARPENTER,
DeForest-Crosley Limited, Toronto

(Before Toronto Chapter, February 12, 1930.)

"PLANNING Production and Control of Materials," the subject chosen for our consideration this evening, constitutes a very important phase of control in the operation of modern business. Control is now definitely established on nearly all divisions of business management. We have control of sales, control of financial operation, manufacturing, operation expense, but have we control of profits which after all is the source from which returns on invested capital must be received, by which we measure a company's progress and right for continued existence?

Planning production and controls of materials can be accomplished much more efficiently and economically of sales, and the ultimate end, profits are carefully planned for the future period.

What steps are next taken to bring under control for the purpose of proper planning the actual operations and functions of each division to secure the very essential result, net profits?

To my mind, budgetary control best fills this need. Budget control is not a new idea by any means, although many consider it as such with regard to its application in the commercial field. Budgets have too often, I think, been regarded only as a means of controlling expenses. The fact that they can play a most important part in the control of each division of operation has been too often neglected.

As this is not a treatise entirely on budgets, I will endeavor to cover briefly the entire system before dealing with the production budget in relation to planning.

Division of Budget Control

Budget control as practiced in our organization breaks down into the following divisions:

Sales and Sales Expense.
Manufacturing Including Engineering and Overhead Expense.
Financing.

We take estimated quota of unit sales. This quota must of necessity be formulated on the basis of careful analysis of markets, sales expectations and co-operation with the manufacturing division as to capacity of production, etc. It is only after careful revision that a sales budget can be arrived at by units showing expected delivery schedules, which may be forwarded to the production division.

The type of business will control the length of notice given a planning department. Some business depending on mill supplies of steel, brass, etc., and requiring the making of special tools and dies, etc., requires 6, 8 and 10 weeks' notice. I think the hardest problem

that the plant has to impress upon the sales division is that commodities are not made over-night, and it is only by careful budget of sales that such information is forthcoming. Upon establishing the sales quota, extensions are then made at their selling price, arriving at our sales volume. We then determine material and labor costs, establishing standards to which we apply plant overhead, absorbing our total estimated expense for the period. Then we add administration and selling expense, including advertising expense pro-rated to absorb the total. These items are all broken down into units, the result being net profit per unit and in total. The original budget may be revised many times before arriving at a satisfactory picture of operations. In order to control this plan we operate all departments on monthly budgeted expenditure, supplying statements to each department head, showing comparisons of actual against budget.

Financial requirements are guaged and with budget control as a background we find are fairly accurate. Sales quotas are established and checked continually, and at the end of each month we know exactly the position to that date in relation to the budgeted plan as a whole.

DO YOU VISIT THE WEST?

Will any member of the Society who expects to be in the West during the coming fall or winter, please notify the General Secretary at 81 Victoria St., Toronto?

The Production Budget

I might state here that during 1929 our expense budget compared with the actual expenditure was within .92%, the variance being over the budget and this achieved after only two years' operation under the budget system. But where, you ask, is the relation between this and the planing department, so we will consider for a short time the production budget in particular.

The budgeting of production presents two main problems.

1. Determination of the total amount of each unit to be manufactured during a budget period.
2. Scheduling of production to assure deliveries of the finished article, which will meet with sales demands.

The sales estimate should be used by production department in estimating the total volume of production. In arriving at the production, consideration must be given to inventories on hand of finished goods at the beginning of the period. One very important item to be considered is the maximum of standardization to be obtained by co-operation of all departments concerned. Simplicity of unit variations being highly desirable from a planning department viewpoint. Organizations producing for stock as well as special order present a

different problem to such an industry as the radio or automobile manufacturer, and fluctuating inventories of finished goods would have to be carefully watched.

A production budget once established enables the planning department in many ways to more efficiently fulfill the important duties to which it is assigned; for example:—

A comprehensive picture for the entire year will decide such matters as machine capacity, storeroom facilities, etc.

It enables plant executives to supply the planning department with production requirements one month actual and three months estimated, this revised monthly. This schedule can be obtained quite readily from the sales department once the routine of working to the budget has been established; also, the purchasing department finds such information invaluable in obtaining materials from suppliers.

In fact the main function of the production budget is to tell the planning department what and when to plan with a fair degree of accuracy, which I venture to say would be welcomed by a good many planning departments.

Purchase Control

The plan we have worked satisfactorily in our own plant is as follows: Material required for production is requisitioned on the purchasing department entirely from the planning department. On no occasion will the purchasing agent make a commitment for materials except on such requisitions. These requisitions are built up from bills of materials of units supplied and kept up to date by the engineering department. Our planning department has complete charge of all material activities in the plant, such as stores, receiving, internal trucking, etc., and maintains a perpetual inventory.

When a release is received for various units of production, quantities required are built up by each part used, taking into consideration the following factors:

Present stock on hand.

Orders outstanding on previous releases.

Scrap or shrinkage allowance.

Service replacement (if any).

Purchase requisitions are then drawn up showing complete description and specifications; also, date required.

Maintenance and supplies materials are requisitioned on an ordinary material required form and presented to stores. If not available they state "no stock" on requisition and forward to the planning department, who in turn issue purchase requisition. We have found this plan to eliminate duplication of buying by various department heads and have been able to carry a central stock from which to supply all departments.

Purchasing responsibility commences upon receipt of purchase requisition and ceases when the material has been received in the plant.

To return to planning and control, consider for a moment these definitions:

Planning is the formulation of a programme to establish the sequence of, and provide the information for, controlling a group of activities or operations necessary for the accomplishment of a predetermined result.

Planning is the managerial function of working out the best combination of procedures through co-ordinating the requirements with the facilities for carrying out the work of the division.

Control is the managerial function of putting these procedures into effect. The combination of planning and control forms a function, which is necessary to, and links together each of the four divisions of an organization—financial, sales, manufacturing and secretarial and accounting.

I quote these definitions from an excellent work on Planning and Control by Wm. O. Lichtner, which I recommend to all interested in this subject.

What of this from a cost accountant's viewpoint? Just as the success of any business depends to a large degree upon proper budget control, so does the successful operation of this depend upon an efficient cost accounting system, and budgetary control is something that should be mastered by cost accountants in order to maintain their important position of painting pictures in figures of manufacturing operations.

I said earlier in my remarks that net profits were the ultimate end of all business organizations. I cannot stress too strongly the importance of profit planning and control as well as production planning, etc. Profit requirements must be planned ahead and a control of financial statements instituted to record its progress.

C. E. Knoeppel in Factory and Industrial Management in a series of articles on Profit Engineering discusses this feature of profit planning and I recommend your attention be given them.

I will close by reading some remarks on "Budgetary Control" given in the January 30th copy of American Machinist from information supplied by Thomas B. Frank, Treasurer of the Cincinnati Planer Company.

"Is Budgetary Control a Cure-All?

"His scratch-pad was a jumble of curlicues and figures. Try as he might, Watson Marshall could not reconcile the audit figures with the budget figures he had set down so hopefully a year before. Bad enough to have the auditors prying into every nook and cranny of the Versatile Iron Works, questioning and checking and verifying, without having them dig up a devil's brood of disappointments. Auditors would try the patience of the patron saint of all corporation presidents. Why, man, we've had the biggest year's business in our history, and here we are just one jump out of the red. He ran his fingers through his hair.

" 'Bill,' he said to his friend and industrial counsellor, William Holland, 'haven't you something in your bag of tricks that you can give me? Surely you've bumped into this same kind of situation somewhere before.'

"'Certainly I have. I've been trying to give it to you for ten years at least. Every year you tell me that your business is different, and go only part of the way. Since you've been showing good black figures year in and year out, I've sometimes thought your business is different. I don't want to rub it in but it looks now as if it may not be so different. What you need is budgetary control.'

"'Budgetary control!' said Marshall, 'I've budgeted until I'm dizzy.'

"'Don't deny it a bit. I'm sure you've budgeted faithfully, but I'm equally sure that you've never really utilized budgetary control. What good does it do you to set down figures when all you do is to make an annual speech about them, and file them away for comparison a year later. I know you don't exactly do that, but you permit this account and that account to get out of hand; Brady needs extra money for the shop, MacDougal needs extra money for the sales department. You've been trying to run your business on "historical figures" alone when you really need, and need to ge governed by, sound "forecast figures." Let me read you what this N. A. C. A. Bulletin says about budgetary control.'

A. It gives the maximum assurance of the desired profitable sales, production, and financial program.

B. It enables costs to be used for current control rather than for mere history.

C. It minimizes uneconomical uses of capital, such as:

1. Undue expansion of plant to meet temporary sales demand.
2. Inventories out of balance with sales and production requirements.
3. Unwarranted investment in work-in process because of lack of proper production control.
4. Unrecompensed financing of customers through excessive datings of excessive storage.
5. Irregular use of plant assets on account of uneven sales demand.

D. It reduces waste through:

1. Study of costs and expenses before actual costs and expenses occur.
2. Institution of wage payments based on results.
3. Assignments of responsibility for expenditures.
4. Standardization of machinery and processes.

E. It indicates the importance of a sound plan of organization.

F. It provides a measuring stick for actual performance; no executive is beyond the good influence of materializing his plans for the coming period, and then checking the results of yesterday's decision with to-day's evidence of profitable results."

Costing in Wallpaper Manufacture

By CLAUD FAUX,
Office Manager, Stauntons Limited, Toronto

(Before Toronto Chapter, November 27, 1929)

AT the outset of the few remarks that I have to make, may I say quite frankly that I feel that I am rather taking up your time under false pretences. When I first had a phone call from one of your executives asking me if I would give Mr. Oaten some assistance in preparing the group discussion for this evening, I rather foolishly said yes, probably my desire to do my little share being too overpowering for my natural sense of caution. I should have obtained all the details of what was required of me in the first instance, but failing to do this, I was later apprised of the fact that this group discussion was practically all centred around piecework, group assemblies and such like methods of factory production, in which the manufacturing business with which I am connected, that of the manufacture of wallpaper, has very little to do. However, having put my hand to the plough, I could not very well turn back, and so I suggested that I might be allowed to just outline in brief a few of the high spots and factory records in connection with wallpaper—this to my mind being preferable to my reading up theoretical information on piecework or group assemblies and handing it on to you in somewhat changed descriptive phraseology.

Now having made my position clear, and having prepared you for the worst, let me endeavour for a few minutes to interest you in a simple picturization of the manufacture of wallpaper and its applied costs.

Relation to Sales Policy

First let me briefly outline the process of manufacture, and in order that you may better understand the process of manufacture, let me add that wallpaper is one of the commodities sold before it is manufactured. Like a good many other statements made but not properly qualified, the foregoing statement may easily be considerably misunderstood. Some of my listeners might think it a very ideal existence to lead in regard to manufacture—that of having the goods sold beforehand, and then having merely to contemplate distribution of the finished product. But as a definite and straightforward statement, it is only partially true, and perhaps I should add another word or two in order to clear things up. Speaking generally, wallpaper is sold from sample books, the preparation of these sample patterns of wallpaper being a process of manufacture quite apart from the regular process of the season's manufacture. After the sample line is prepared, salesmen armed with books containing samples of the various patterns of the new season's line call on the various wholesalers and retailers interested in the distribution of wallpaper, and sell them, or try to sell them in some cases, their season's requirements for wallpaper. The months of July, August and September comprise the regular selling season, and during these months

the orders received from many salesmen are tabulated by pattern number, and when the total rolls sold of any particular pattern make up a quantity sufficient to guarantee economical production, such pattern is printed in due course. If the co-relation of salse and manufacture stopped right there, it would be an almost ideal situation, but unfortunately it does not. Not only does the manufacturer have to look after the production of goods already sold, but he must manufacture additional rollage to take care of the probable requirements for repeat orders in the best selling patterns. Unfortunately too, what may be optimistically considered as a good seller by the retailers may not ultimately have the anticipated reflection in the public demand, and the surplus stocks produced in anticipation may be left with the manufacturer to be disposed of as best he can, and getting rid of surplus stocks, whether in wallpaper, carpets, knitted goods, boots and shoes or even automobiles, is no sinecure at any time.

Process of Manufacture

Having just digressed for a moment to explain the relation between sales and manufacture, let us get back to the process of manufacture. The manufacture of wallpaper is not quite as simple as it sounds. When you realize that our own company prints annually several hundred patterns of wallpaper, and that each pattern is colored in many different combinations of color, with each style having to go through the machine separately, you have some idea of what is involved.

Keeping this in mind, you can begin to understand how difficult it would be to try and cost wallpaper by anything other than an average unit of 100 or 1000 rolls, and in the event of some of you thinking it might be very simply done and lying awake at nights in serious contemplation of the possibility of your working out a system whereby wallpaper can be costed along the lines of pattern units or style groups, let me add that the best authorities of the British and United States wallpaper factories have already debated it, and finally came to the conclusion that it was practically impossible, and that if it were possible, the cost of taking care of any such system would be out of all proportion to the cost of manufacture of wallpaper. But having said this, I must quickly disabuse your minds from any idea that wallpaper is manufactured under any haphazard hit and run methods, with guess work as one of the main factors. With monthly averages of the cost of the various materials, labor and overhead carefully kept and compared with the previous year's figures, supplemented by daily and weekly comparisons of many kinds, it would perhaps surprise you to not how quickly any approach to anything savouring of extravagance both in manufacture and distribution can be spotted and adjusted.

The main item of raw materials is the raw paper, which is received from the paper factories in large reels weighing from two to three hundred pounds. This raw paper is put through the machines and coated with a mixture of clay, and sizing, stained to the required color, and as it passes from the machine, travels slowly along drying racks, through a very heated atmosphere, festooned over round sticks. By the time the paper reaches the other end of the factory, the ground colors have completely dried, and the paper is then picked up on an

endless canvass belt and rushed back to the printing machine. It is then printed on in different colors by a number of matched print rollers, each of which prints part of the design on the grounded surface. The paper again travels along the drying racks, and slowly the true beauty of the design is revealed. This time the paper is reeled up in large reels, in some cases awaiting their turn to be rolled into the regular sized roll for retail consumption, and in other cases awaiting further processes of overprinting and embossing.

Finally the reels are all rolled into the commercial roll and packed into bundles or cartons for shipment.

This is, of course, but a very brief description of wallpaper manufacture, but time will not permit further elucidation, interesting as it might be.

The manufacture of the original patterns used for travellers' sample books is done somewhat along the same lines as the foregoing, but there are many interesting side lights to the sampling angle, starting from the artist's design and carrying you through the preparing of the printing rollers, along to the scores of trials necessary to obtain the correct combination of colors, and then to the manufacture of the complete sample books with their many hued designs of artistic wall coverings.

The Accounting Records

Having, I hope, given you a brief mental picture of the process of manufacture, I may be able to interest you for another minute or two in an outline of the details obtained and kept to tie up the process of manufacture with the factory and accounting records.

The main raw material elements in wallpaper manufacture are: Raw paper, colors, clay, bronze, sizing, mica, oils, varnish. The raw paper required by the printers in charge of the various printing machines is obtained by a requisition on the stock-keeper. The goods are supplied in due course and daily returns are sent in to the accounting department showing the weight and description of the paper used. Requirements for the other raw materials are handled in the same way.

These factory returns are regularly entered in the stock registers, and at the end of each month consumption reports of all raw materials, extended as to weights and values, are credited to the stock on hand account, and debited to the stock used accounts, these accounts, of course, tying up with the monthly profit and loss account. A physical inventory of all raw materials is taken quarterly, and this physical inventory should agree with the quantities on hand as shown by the stock registers. Not only should the quantities on hand agree with the stock registers, but their extended laid down cost value must agree with the values as shown in the "Stock on Hand" accounts in the General Ledger.

During the process of manufacture there is unfortunately a considerable amount of paper waste, both raw and partly or fully printed. Paper is very fragile at best, and a slight irregularity in the smooth running of the machinery will damage a lot of paper, as will the human element. All such paper is carefully weighed and recorded to make sure that there is no excessive waste. All returns from the sale of the damaged paper are credited up to the consumption cost of the raw paper.

For the purpose of obtaining a closer check of the waste situation, supplementary returns are received by the management showing the waste accumulated in the various departments. Waste is also figured as a percentage figure against the pounds of raw stock used, so that a complete picture of the situation is always at hand.

Production Records

Knowing the value of all the materials, labor and overhead used in production, the next step is to obtain the quantity of goods produced.

I might add here that there is a clear cut distinction between goods printed and goods produced. Goods actually rolled into commercial rolls are alwaays considered as production, but paper with only the ground color printed thereon is not considered as production.

Generally speaking, goods in process (that is, the goods in an elementary stage of production) represent a very small proportion of regular production, and taken over a long period of months, is a fairly consistent figure.

Supplementary figures showing the rolls produced by each printing and embossing machine, and the number of hours each machine is working, keep close tab on operation. All figures are closely compared with the previous season's figures.

The rollage production is tabulated from these records, and monthly averages are worked out showing the cost of each item of raw materials, labor and overhead against the production for the month. Not only is it figured monthly, but also as a year to date figure, and these figures are also compared against the corresponding figures for the previous year.

In addition to the above records, other statistical information is given to the management in regard to the operations of the studio, print roller department, warehouse and distribution, office, salesmen, etc., forming an elaborate check on all the various operations in connection with the manufacture and distribution of wallpaper.

Basis for Pricing Goods

Just before I close, and to forestall the query of any cost accountant here present as to how the selling price of wallpaper is fixed without knowing the actual cost, let me briefly outline this point. After the samples for the new season's line have been prepared, the management, with their technical experts and sales staff, get together and with their various experiences collaborated, decide on the selling price according to a number of factors, the chief of which are quality and design, and the estimated appeal to the public fancy. With a line of wallpaper balanced from experience along a well comprehended price range, the application of selling price to cost price is always correctly related.

In such a brief synopsis, I have only been able to give you a very rough outline of the manufacture of wallpaper, and the tie-up of factory records, but if I have offered very little by way of educational facts, I at least hope that I have started a thought or two that may have some ultimate reaction in a slightly wider appreciation of the varied aspects of what we all have so much at heart—the value to the business world of cost accounting.

Paying Office Workers by Results

IN the magazine "System", W. H. Leffingwell gave some suggestions for paying office workers by results which, summarized, are as follows:

The first step towards payment by results is a broad, general survey to determine whether there is some general unit by which the work of the office as a whole can be measured. Most always one can be found. In a manufacturing or merchandising office this unit might be the order. Most of the work in such an office is either directly or indirectly attributable to the order. If there were few the work would be less. If there were many it would be more. Whatever unit is used it should represent work and not money, for there is usually quite as much work involved in a $10 order as in a $100 order, or a $1,000 policy as a $10,000 policy.

Clerical Minutes

When the unit is determined, the number of clerical minutes per unit should be ascertained. Multiply the number of clerks whose work is influenced by the volume of units either directly or indirectly, by the number of minutes they work in a day. This will give the total number of clerical minutes. Divide this by the average number of units handled and this will give the clerical minutes per unit. For example: Suppose the unit is the order. You have 300 clerks working 480 minutes each and you have an average of 750 orders a day.

$$\frac{300 \times 480}{750} = 192 \text{ clerical minutes per order.}$$

This will give the general overall figure. The next step is to find the clerical minutes per order on each particular activity in the same manner. You may find, for example, that you have 20 invoice clerks. The problem then is $\frac{20 \times 480}{750} = 12.8$ minutes per order. Is this too much? Time a few invoices and find out. Proceed in this way through each activity.

The next step will be to find certain definite units of measurement which will enable the management to determine just how much is being delivered by each clerk and whether or not the amount is satisfactory. Work can be measured in many ways. It can often be counted, weighed, or measured with an inch rule. Very often it is necessary to measure the work by the output of groups of clerks. Typing may be measured by square inches, lines, or cyclometer points. The value of the square-inch method over others is that it may readily be applied to all kinds of typing work, *after* the work is done. It is, of course, folly to have one standard for all kinds of typing. One transcribing department has 75 standards in use.

A Unit for Measuring

In devising a unit for measuring clerical output, it will be found that the order unit, satisfactory as it is for over-all measurement or the measurement of any particular feature, is not at all suited to this

purpose. It would, besides being inaccurate, be most unwieldy and inconvenient, for instance, to measure an operation which required one minute to perform, by making it as 1-450 of a unit.

But for this purpose, the method described below, which I have used, has been found perfectly satisfactory. By its use the relative efficiency of each clerk can be quickly obtained, and the work of a stenographer compared with that of a file-clerk or bookkeeper. Some definitions are necessary here, inasmuch as I have used a number of technical phrases which without them would be meaningless.

Time-unit. A time-unit is one hour. An eight-hour day contains eight time-units.

Standardized operations. Operations on which time studies have been made, and a standard rate of production set, are called standardized operations.

Unstandardized operations. Operations which have been studied as above, or which are not considered sufficiently important for such study, are called unstandardized operations.

Work-unit. By this term is denoted the standard production an hour of an operation. Thus, if Standard Number 1 demands performance at the rate of 1,000 an hour, 1,000 is one work unit for this operation. If Standard Number 2 demands but 500 an hour, then 5,000 is 10 work-units.

Finding the Rate of Efficiency

(1) One hour's production at the standard rate equals one work-unit.

(2) The actual production, divided by the standard production per hour, equals the number of work-units produced. Thus, if 2,000 of Standard Number 1 are produced and the rate on this standard is 1,000 per hour, it is clear that the production is equivalent to two work-units.

(3) The number of work-units produced, divided by the number of hours worked, or the time-units, equals the percentage of average efficiency throughout that period. If, for example, the standard rate is 1,000 per hour, and 2,000 are performed in two hours, the method of figuring would be as follows:

Work-units produced.....2
Divided by time-units.....2 } = 1 or 100%

Or take another example:

Work-units produced.....1
Divided by time-units.....2 } = ½ or 50%

In office work I have found that it is most advisable to guarantee a certain wage and then by a bonus for extra effort accomplished on standardized work. The author's plan, as first described in *Scientific Office Management* in 1917, is as follows:

(1) Determine the general average salary paid for this operation.

(2) Determine the maximum amount the company is willing to pay for 100% efficiency. Consider also the minimum amount of bonus which will be an incentive to the employee to reach 100%.

(3) As will be seen from the table, the bonus for 100% efficiency is 50% of the standard wage. Therefore, the standard wage, plus 50%, should equal the maximum sum it is desired to pay for 100% efficiency. That is, the standard wage should be two-thirds of the maximum, and the bonus for 100% of efficiency, one-third.

(4) Establish a "standard salary" for an operation. By this I mean a sum of money upon which to figure the percentage of bonus. This sum should closely aproximate the general run of salaries paid for this operation, but not necessarily so. The only purpose of this standard salary is to figure the bonus, and it does not mean that if a clerk is getting more than the standard salary or less, he is to be reduced or raised to the standard. The object of having a standard is to make the figuring of the bonus more simple.

(5) The following sliding scale runs from 67% to 100% efficiency:

Percentage of:			
Efficiency	Bonus	Efficiency	Bonus
67	0.0	84	13
68	1.0	85	14
69	1.4	86	15
70	2.0	87	16
71	2.8	88	17
72	3.4	89	18
73	4.4	90	20
74	5.2	91	22
75	6.0	92	24
76	6.6	93	26
77	7.2	94	28
78	8.0	95	30
79	8.8	96	32
80	10.0	97	34
81	10.4	98	36
82	11.2	99	38
83	12.0	100	50

On everything above 100% efficiency, pay a bonus equivalent to the rate per piece at the 50% bonus. For example, if the standard salary is 20 cents an hour, and the standard 200 per hour, if the clerk does 300 per hour, the bonus would be figured as follows: 50% of 20 cents is 10 cents, which bonus is paid for a production of 200 per hour; therefore, this is at the rate of five cents per hundred, and if a clerk does 300 per hour, he gets three times five cents, or 15 cents an hour.

With this method, the cost per piece, that is, the salary plus the bonus for a given quantity, is reduced as the quantity done increases, and the clerk gets adequate reward for increasing activity. The mere measurement of work almost invariably brings about an increase of output of from 10% to 25%. So long as work is not measured, clerks adopt a common gait, usually gaged by the lowest common denominator. When it is measured, however, each worker is spurred to make an effort to excel.

The general experience of firms who have tried the plan of payment by amount of work produced, is that the morale of the employees is better and the cost of production much lower. Workers make better salaries than they can get elsewhere, turnover is greatly reduced and everyone is happy.

Presentation of Costs to the Executive

By W. F. PUTT,
The Steel Company of Canada Ltd., Toronto

(Before Toronto Chapter, January 29, 1930.)

UNDER present conditions cost analysis in manufacturing has become an absolute necessity for the successful operation of any business. Several ideas come before us in this connection; one is this, that keen competition and the varied and many changes which occur in industrial concerns require executives to be furnished with costs, giving them just the knowledge and information they require in a concise form. An executive in speaking to his cost accountants said, "Gentlemen, upon you we depend for our information regarding all our costs, therefore, be sure they are correct and plainly understood before passing them along; if they are not accurate their value is lost."

In considering the kind of statements which may be prepared from cost data attention must be given to the time of their preparation as well as their form. As to time they may be prepared for the particular cost period under review or for the current fiscal year to date in cumulative form. Reports of a special character, dealing with matters which should receive the immediate attention of the executive may be prepared daily, weekly or when necessary. The form may be either statistical or graphic, i.e., showing results and operations tabulated by giving quantities or values or, both showing charts for comparison purposes.

"To whom and what Executive." Under this head we have in the May, 1929, issue of Cost and Management a complete cost sheet, operating chart, sales chart and financial statement covering all four divisions—Manufacture, Administration, Sales, and Finance, therefore will confine remarks to the manufacturing executives:—Works Managers—Superintendents—Production Managers.

In presenting costs for the above executives they should reflect the efficiency of the manufacturing departments as follows:—

(1) Statement of Costs and Production.
(2) " " Labor Statistics, etc.
(3) " " Factory Expenses composing Factory Overhead.
(4) " " Machine statistics showing Repairs, etc.

PRESENTATION OF COSTS TO THE EXECUTIVE

1. STATEMENT OF COST AND PRODUCTION

.....DEPARTMENT

DETAIL OF CHARGES	Current Month	Previous Month	Increase or Decrease
Material Charges			
Productive Labor			
Overhead Charges:—			
Non-Productive Labor			
Supt., Foremen and Clerks			
Labor, Materials—Repairs			
" " Maintenance			
Tools, Lubricants and Supplies			
General Works Expense			
Steam			
" Heating			
Electric Light and Power			
Engineering Expense			
Water			
Dies and Tools			
Sundries			
Total Charges			

PRODUCTS	CURRENT MONTH			LAST MONTH			Weight Increase or Decrease	Value Increase or Decrease
	Weight or Count	Price	Value	Weight or Count	Price	Value		

Referring to Statement (Cost and Production) the nature of business will govern whether statements may be prepared for each department or combined on one form—various further reports can be made from these figures—such as, cost per weight or count according to product produced—perpetual inventories can be kept of the product, so that the executives can judge whether or not goods in process are going through the factory and not accumulating too much in any one department—or the need of new business to improve conditions.

2. STATEMENT OF LABOR COSTS

DEPTS.	Average No. of Workers		Days in Operation	Labor Hours		Wages Per Hour		Wages Average Per Week
	Prod.	Non-Prod.		Prod.	Non-Prod.	Prod.	Non-Prod.	

In connection with this statement have briefly outlined form showing average number of employees, days in operation, the productive and non-productive labor hours, also wages per hour and the average wages per week, from this comparisons may be made for certain periods as desired. The executives can by this means determine whether it is advisable to change the wages of the workman from day work to a piece work basis, also can keep a closer watch on the labor changes.

3. STATEMENT OF FACTORY EXPENSES

.....DEPARTMENT

DETAILS	This Month	Last Month	Increase	Decrease
Supervision (Supt., Foreman and Clerks)				
Non-Productive Labor				
Supplies				
Tools and Lubricants				
Light, Heat and Power				
Repairs, Labor and Material				
Maintenance, Labor and Material				
Dies and Tools				
Sundries				

This statement is simply an analysis to show the executives any unusual expenditures which occur, so that the same may be looked into and remedy applied where possible. Comparisons can be made with any period desired.

4. STATEMENT OF MACHINE COSTS

.....DEPARTMENT

ITEMS OF COST	Amount	Machine	Statists
Labor			
Overhead:—			
Indirect Labor			
Depreciation			
Repairs			
Supplies			
Power, Light and Heat			
Dies and Tools			
Sundries			

DETAILS OF MACHINE			
Machine No.	Actual Hours Operating	Possible Hours Operating	% Possible 9 Hr. Operation

This report may cover a department or separate machines or any period desirable—also a report can be simplified by giving the running time, cost of labor and repairs, and a comparison of actual or possible operating hours.

This paper covers briefly one method of keeping cost data for the executive and can be enlarged upon to suit the particular needs of any industrial concern.

Financing Export Business

By G. A. PETERS, C.A.,
Gordon Peters & Company, Toronto.

(Before Toronto Chapter, January 15, 1930.)

WHEN our Secretary telephoned, requesting me to take part in this programme I consented with some hesitation, feeling that I could not do it full justice. However, every member of this Chapter must be prepared to do his part so I am going to do my best.

As stated by Mr. Carruthers the subject to-night is "Export Markets and Selling Prices." My part is to deal with the financial arrangements necessary when exporting, such arrangements cost money and therefore effect the selling prices.

The financial arrangements for exporting is indeed a vital part and if not complete spell disaster not only to the exporter himself, but to Canada at large. If an exporter figures his costs too low, fills the order and there is a loss, he alone suffers, but if adequate and correct financial arrangements are not made and the importer is put to some loss or inconvenience, Canada gets a "black eye" and other exporters to that same country are looked on with disfavor or perhaps lose orders until confidence is re-established. Consequently, gentlemen, every firm contemplating entering the export field should carefully study the financing before entering the field, and when an order is received he should be sure to comply with all the requirements relative to the financial part of the transaction.

This is a big subject and can not be completely dealt with in the time at my disposal.

Credit an Element of Foreign Trade

Credit is an element in most business transactions. It is even more necessary in foreign than domestic trade, since more time is usually taken up in the movement of goods between seller and buyer when these two are located in different countries. There are also customs delays. It is also a fact, both in domestic and foreign trade, that the buyer may wish time to dispose of some or all of the goods before payment.

Drafts which cover staple goods in bulk—wheat or other primary foodstuffs, such as meat—usually are drawn at short date no matter what country the buyer is located in. In the case of dry goods, which take a longer time to reach the consumer, longer credits are found necessary; this is true of hardware to an even greater extent, and of machinery to the greatest extent of all.

Credit extended in foreign business as a rule, however, varies from thirty days to one hundred and eighty days.

To extend credit implies confidence, which in turn depends on personal knowledge, or information on the buyer's standing, obtained from banks or mercantile agencies. The supplying of credit information has come to be one of the most important services rendered by Canadian bank branches abroad.

Who Finances Exports

These credit requirements of the buyer indicates the steps he takes to avoid tying up his capital in goods in transit. Now the seller no more desires to suffer loss through tying up his capital than does the buyer, yet that is what he must do when he draws a time draft and does not receive cash until maturity date. To avoid this he requires to be able to discount the paper at his bank. The bank then provides the capital for the short term involved for which a charge is made.

There are two classes of bills which may be presented to the bank for collection or discount, (1) *"Clean bills"* are those without bills of lading or other documents attached. (2) *"Documentary bills"* are those accompanied by bills of lading and other documents evidencing shipment.

Sight and Time Bills

A sight bill, while technically payable upon presentation, in many countries has come to mean the date of arrival of shipment at the foreign customs house. This adds to the difficulty of establishing a maturity date and is one point in favour of drawing "date" usance bills, which specify for payment so many days or months after date instead of after sight.

Since time drafts do not become cash until after a certain interval it is less valuable than a sight draft. This is illustrated by the following schedule showing the buying rates in New York for commercial bills drawn in U.S. dollars on firms in the Argentine Republic. These rates are based on an interest rate of 6% plus collection charges of ⅛ %.

Sight	Discount—1⅛ %
30 days sight	1⅝ %
60 days sight	2⅛ %
90 days sight	2⅝ %
120 days sight	3⅛ %

Discount Rates

When discussing discounts we have to distinguish at once between, (1) a bill payable in the currency of the country on which it is drawn. (2) A bill payable in the currency of the country in which it is negotiated.

The difference between these two classes of bill is that in the first the question of interest does not arise in the same way as it does in the second class. A sight bill, payable in sterling drawn by a Canadian house on a bank in London, England can be purchased by the bank at the ruling rate for sight items. That rate is lower than the cable rate by an amount which covers the longer transit, in other words, the rates take into consideration the interest loss involved during the voyage of the bill to London, but there is no question of a further interest charge.

In the case of bills drawn in Canada on foreign countries, but payable in Canadian funds, Exchange can not be sold against these. The question of transit in both directions therefore arises and interest must be charged for the time which will elapse between discount of the bill in Canada and receipt of return remittance. The rate at which a

bill is discounted depends naturally on its tenor and the mail time *from* the place at which the bill is drawn to the place *on* which it is drawn.

For example a draft drawn at ninety-days sight on Buenos Aires, payable in dollars at the sight rate of exchange an additional two months interest is added to the ninety days to cover the estimated time in transit to and from that point. A bank reserves the right to adjust the interest charge with the drawer of the draft, should the lapse of time be longer than the time estimated.

The incidence of such interest charges, and also of collection and foreign revenue stamp charges, is a matter of arrangement between buyer and seller. Foreign firms resent the addition of detailed small sums of this nature and collections are facilitated by their inclusion in the face amount of the draft. For the seller this intails a slight advance in the quoted price of his merchandise.

Discounts

The exporter, when drawing drafts covering a shipment, will wish to secure a net amount at least equal to that which he would have obtained in a cash sale. If sent on collection he is tying up his capital and losing interest. If he discounts the draft he does not receive the face amount. In either case he expects to be compensated by the buyer. When quoting prices, the terms of payment are kept in mind, and quotations are raised to cover the cost of discount.

Exchange Clauses

The fact that a bill is not payable in the currency of the drawee's country at once gives rise to the question of how the conversion rate between the two currencies shall be established. This and other points of issue are settled by the addition of a clause to the draft indicating the basis on which settlement shall be effected. The usual clauses for dollar and sterling drafts on foreign countries read respectively as follows:

> "Payable at the bank's selling rate on day of payment for sight drafts on New York," or
>
> "Payable at the bank's selling rate on day of payment for sight drafts on London."

An exporter to Australia, New Zealand or one of the British sections of South Africa either, (1) sends his draft for collection to the branch or correspondent of a London bank and eventually receives payment in London, or (2) wishing to receive cash immediately for the bill sends it to London for negotiation, at the same time dispatching the documents required to release the shipment direct to the point of consignation, in order to avoid delay.

Other Clauses

Some typical clauses endorsed on such drafts:

(1) Bills for collection.—"Payable with sight exchange in London, bank's commission and colonial stamp duty."

The drawer will ultimately receive settlement in London for the face amount of a bill endorsed as above.

(2) Bills for negotiation in London for which drawees are to obtain face amount in London funds.—"Payable with exchange and stamps as per endorsement."

Here the drawer passes his bill to London and receives the face amount at once. The drawees have to take up the bill at the rate endorsed on it by the negotiating bank at London. In such cases the exchange between London and Canada is the only uncertain factor, so far as the Canadian shipper is concerned.

Documents

A set of documents covering an export shipment usually consists of:

(1) One negotiable bill of lading vised by the Council of the country of destination.
(2) Insurance policy or certificate of insurance.
(3) Consular invoice.
(4) Commercial invoices and in some cases,
(5) Certificate of origin.
(6) Packing list.
(7) Health certificate.

As a precaution against loss, bills of exchange on foreign drawees are invariably made out in duplicate, and are forwarded by successive mails; to the original draft a complete set of documents is attached, and the duplicate draft will be accompanied by a negotiable bill of lading, a commercial invoice, a certificate of insurance and, when recovered, a consular invoice of certificate of origin.

Marine Insurance

Railways as common carriers, are liable for loss of or damage to goods they have accepted as freight. This is not the case with steamship companies, whose liability is strictly a limited one, and arises mainly from loss or damage caused by negligence in loading, or in stowage, or in proper delivery of cargo. The carrier is obliged to provide a seaworthy boat, and officers and crew chosen with reasonable care. For their errors or omissions it is not responsible. The risk is not borne by the owner of the goods but is shifted to the shoulders of an insurance company. Banks will not accept documentary bills of exchange for discount unless insurance policy or evidence that insurance has been covered by drawer is attached.

Average

The word "Average" used in marine insurance policies signifies a loss less than total, resulting from what may be termed sea damages. There is "Particular Average" and "General Average."

Consular Invoices

While consular invoices are not required by all countries this document is one of the most important in export trade when it is made obligatory by the regulations of a country.

These regulations are strictly enforced, the penalty for non-observance as far as South American countries are concerned, being heavy fines.

Commercial Invoices

These are often required in duplicate with each set of documents. They have to have full details, and the use of trade abbreviations, or the omission of weights or measurements considered unnecessary, may cause considerable trouble.

Certificates of Origin

These are required by the custom authorities of a number of countries.

Commercial Credits

A considerable volume of international business is financed by means of bankers' credits. The terms of these vary greatly to suit the requirements of each individual transaction. All such credits, however, have certain characteristics in common: all are an authorization for some seller of goods to draw on the buyer with the bank's guarantee that the drafts will be paid, or on a bank which promises to honour the drafts.

Clean credit is one in which payment is made to the beneficiary against his receipt, or against a clean draft.

Documentary credit is one in which payment is made by the bank against delivery of the full set of documents called for by the terms of credit.

Revocable Credit.—This promise is contingent upon advice to the contrary not having been received.

Irrevocable Credit.—This security cannot be taken away against the will of the beneficiary.

This may be confirmed or unconfirmed—by this is meant that a credit which is an irrevocable engagement of the issuing bank may be confirmed to the beneficiary by another bank which hereby gives its undertaking that drafts drawn in accordance with the terms of credit will be duly honoured.

Revolving Credits.—These were devised to meet the needs of firms in different countries whose business transactions with each other were more or less regular and continuous.

Essentials

The four parties to a commercial credit are: The bank that opens the credit; the paying or accepting bank on which the beneficiary is authorized to draw; the seller or beneficiary who is authorized to draw and the importer or buyer for whose account it is opened.

When opening a credit it is necessary to state:

(1) Whether the credit is revocable or irrevocable.
(2) The tenor of the drafts to be drawn.
(3) The amount of the credit.
(4) How goods are to be consigned and bills of lading.
(5) Details of documents required and the disposition to be made of same.
(6) Where and how insurance is to be placed and to whose order it is payable.
(7) Expiry date.

(8) For whose account the credit is opened.

(9) The number of the credit and instructions that bills drawn under it shall bear the clause "Drawn" under The —— bank. Commercial Letter of Credit No. ——.

General

In the foregoing remarks it has not been my intentions to give all the facts necessary to be known by one entering the export business, but rather to impress you with the fact that one should not enter the export field without first becoming fully acquainted with all the requirements. The material for this paper has been obtained from a book entitled "Financing Foreign Trade," written by Mr. Graham F. Towers, Inspector of Foreign Dept. of the Royal Bank. I would recommend to prospective and present exporters that they procure and read this book.

Conclusion

In conclusion, gentlemen, I would urge every manufacturer to seriously consider entering the Export field, for this is one sure way of helping to develop Canada. This is what all Canadians should try to do, and I would suggest that every member of this Chapter make a special effort to have the Company he is associated with consider this very seriously. Along this line the following appeared in a recent issue of the "Canadian Trade Index."

"A Sermon on Export Trade"

"Some twelve months ago an inquiry was received for certain electrical instruments. Upon examination we found the specification called for an instrument which fitted very nicely to one which we had recently developed. We therefore forwarded samples and cabled a price. Until this inquiry came in we had not thought it worth our while to go after export business; we had assumed that they would be able to buy such apparatus as they required to further advantage from England, Europe or the United States.

"In July we were delighted to receive an order for these instruments for $30,000.00. The first deliveries were received in Australia in October, and I am glad to be able to say that a duplicate order for $30,000.00 was received in the same month. These two orders have kept our factory running to more than full capacity for seven months.

"What is even more important, it enables us to place the organization on a piece-work basis which in turn is reducing the cost of domestic production. I have also improved the spirit of the organization, as we had been running on short time for some months.

"It occurred to me that this is a very good illustration of how the Canadian manufacturer is falling down. Many of us lack confidence in our ability to compete with Europe and the United States. Here is a case where the buyer had to seek us out, and when he had discovered us we found we were able to supply him with exactly what he wanted at a price which was competitive, a price which left us a fair margin, gave a contribution towards our overhead, reduced the cost of our domestic production and made everybody feel happy."

Corporations and Their Financing

By W. S. FERGUSON, C.A.,
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(Before Hamilton Chapter, December 18, 1929.)

COST accountants will not be content with a knowledge that relates only to compiling all costs and the best methods of doing so. It would be no compliment to cost accountants to assume or to say that their interest is confined to one particular phase. While costs are being determined, the cost accountant is dealing with the various elements of cost, and it must be of some interest and, perhaps, concern to him to understand the financing necessary to supply these elements of cost and to make them available for purposes of production. This is emphasized by the fact that the work of a cost accountant should be an important factor in sound financing. The object of his work is not merely to determine the costs as they are.

In the great majority of cases, industry is carried on by a business concern with a corporate existence, and it is only right and natural that those whose duty it is to determine costs and to assist in the financing by reducing costs should have a knowledge of the broader question of corporations and their financing.

At the outset, the distinctive features of a corporation that distinguish it from other forms of business organization may be noted since these features make possible industrial development on a large scale.

Distinctive Features of a Corporation

A corporation may be variously defined. It is sometimes referred to as an artificial person created by the State. A corporation is an entity separate altogether from the members who compose it. Hence, the corporation may own property, but this is not the property of its members. It may owe debts, but these are not the debts of its members. Since it is an entity separate from its members, the change in the membership does not affect the corporation which is the feature of perpetual succession.

Business corporations are usually referred to as limited liability companies. This means that the liability of the members is limited to the amount they have promised to contribute to the assets or capital funds of the corporation,—a vital distinction from partnerships where the personal resources of the partners are at stake for the debts of the business. A partnership cannot act as a person separate from its members. With this as a background, it is apparent that the capital funds of a corporation belong to it and not to the members.

As a corporation obtains its charter from the State, its powers also are given by the State, and in the certificate certifying that a corporation has been formed with a certain name will be a statement that the corporation is authorized to issue a certain number of shares to obtain capital. The fact that the authorized capital is divided into a large number of shares makes it possible to have a large number of contributors or shareholders, and this, in turn, makes it possible to

obtain funds sufficient for operations. The value of this in our economic development may be readily seen by looking at some of our large industrial corporations. It has been estimated, for instance, that in the pulp and paper industry an investment of $100,000 is required for each ton per day capacity, calling for an amount that would be impossible under any other form of business organization.

In the beginning, the shares of a business corporation would be all of one kind. As there were no special features, they were termed "ordinary" or "common". In fact, it was not necessary to designate them by any name since there were no other classes from which to distinguish them. Funds were obtained by an issue of these shares to subscribers who thus became members of the corporation. The idea behind the term "Joint stock companies," is that the capital stock is held in common, that is, that each member has a certain proportionate interest which is his personal property.

Reorganization

All businesses are not successful and, in the course of time, some limited liability companies required reorganization or reconstruction. This involved new funds and it was difficult to make an appeal to the public to add to the funds on the same basis as the present members so, in order to give them some inducement, there was developed what is known as "preferred" shares, which would have a preference over the other shares which, being all the same, were ordinary or common. The preference attached to a class of shares must be clearly stated in the charters or by-laws creating it and no particular preference is inherent to the shares. It invariably applies to dividends. The meaning of that is not that any return is guaranteed on the shares, but that if there are profits and if the directors, who are a committee of shareholders to whom the general administration is entrusted, decide to distribute any of those profits in dividends, the stated dividend on the preferred shall be taken care of before anything is given to the common. It is regrettable that the public at large do not understand this feature to the extent they should. Too many have the idea that dividends and interest are the same thing, whereas there is no relation between them. If there are no profits, there are no dividends, and if there are profits it is usually at the discretion of the directors whether they distribute any amount or not.

The preference may also apply to the repayment of principal in the winding up of the company. Here, again, the preference must be very definitely stated. If shares are stated to be preferred as to principal and nothing more is said, they would, after the common has also received the face amount, share with the common in the distribution of any surplus. If they are not to share in any surplus, the point should be definitely stated.

As time went on, the holders of preferred shares found very often that they did not receive the anticipated dividends or did not receive the full amount, and that in later years when profit funds were available they could not claim the arrears. This called for further inducements when new financing was necessary, and so the cumulative feature was added under which if the dividends on cumulative preferred shares went into arrears, these arrears must be paid up before anything is given to the common. Again there is no guarantee of

dividends and no liability for them until they are declared. It is the preference that is cumulative, not the liability. The preferred shares that have been referred to previously may be termed "ordinary preferred." Preferred shares will be presumed to be cumulative unless otherwise stated.

Borrowing

Again, in the course of time, it was found when funds were required that there were many investors who were not willing to become members of a corporation and run the risk of income depending on profits, but who would be willing to supply funds as creditors with proper security. This led to the issue of bonds as a feature in corporate financing. The bonds issued by public corporations such as governments and municipalities are "debenture" bonds. There is the promise to pay the principal at a certain date, and interest at a stated rate at stated dates in the meantime, but there are no assets pledged by a mortgage as security. The good name and tax power give the security. Some of our public utilities have, in recent years, issued debenture bonds on the strength of their earning power. The usual form of bonds issued by industrial corporations is the "mortgage" bond. The bond feature is the promise to pay as in the case of the debenture bond. In addition, there is security pledged by way of a mortgage, usually referred to as a trust deed, on the fixed assets. There may be a floating charge in addition. This floating charge against the remaining assets does not interfere with them in any way as long as the terms of the mortgage are complied with. If there is default, this charge fixes itself on the remaining assets. In other words, it has floated over them until the contingency arose that led it to be fixed to these assets. It is not possible, within reasonable space, to go into many other bond features, such as "collateral trust" bonds, etc., but the intention here is merely to discuss the form of financing.

There was a time when a debt secured by a mortgage was taken as an evidence of weakness, but that time has passed and borrowing is now recognized as a possible factor in a properly balanced financial structure.

It is important to observe when borrowing may be profitable and when not. If the earning capacity of the business is higher than the rate paid on the money borrowed, there will be a profit to the shareholders to the amount of the difference between what is earned by the borrowed capital employed and the amount paid for it, so that the return on their investment may be higher than the earning capacity of the business. On the other hand, if borrowed money costs more than the business rate of earning, the difference must be made up out of the earnings of the shareholders' investment. A prosperous period will emphasize the first of these conditions, and a period of depression may find the latter.

Values in Relation to Balance Sheet

This brings up the question of a properly balanced financial structure. Suppose that a company is formed to take over an existing enterprise. The financial structure would likely be considered well balanced if preferred shares are issued for the amount of the tangible fixed assets, bonds for working capital, and common shares for the intangibles or earning power. The valuation has probably been based

on earning power in the first place. In such a case, the value behind the common shares may be quite different from that of a new concern, especially a new business where a conservative basis would be to commence with common shares and follow with preferred after the earning power has been established, and also probably bonds.

The cost accountant will have no difficulty in understanding the investment in fixed assets such as land, buildings, plant and machinery, etc. Working capital is a matter of great importance to him. The amount of working capital at the beginning would need to be sufficient to purchase material, pay wages, factory overhead, selling and administrative expenses until returns came in from the sale of the product. Terms and credit will have a bearing on this last point. The working capital is the excess of the current assets over the current liabilities. It is quite evident that the cost accountant plays no small part in conserving working capital through the elimination of waste, and by the comparative figures he is able to produce. An understanding of the financial requirements will assist him to see his responsibility and, incidentally, his importance.

Profits and their distribution have a bearing on working capital. Profits are represented by an increase in current assets and thus increase the working capital. It is important to observe here again the difference between a corporation and a partnership or sole proprietorship. In the last two, the profits belong to the proprietors who will take credit for them. In the case of the corporation, the profits do not belong to the shareholders but to the corporation itself, and hence the directors determine their disposal. A well-managed corporation will not distribute all its profits in dividends, but will accumulate a portion of these to strengthen the business. The working capital is further increased through the provision made and charged to operations to provide for depreciation in the fixed assets. The amount is realized like other expenses out of sales as a current asset, while the net value of the fixed assets is correspondingly reduced. Whether this amount should be taken out to provide a sinking fund to replace the asset, or whether it will be used in operation, is a matter of policy.

No Par Value Shares

In passing, a reference should be made to the development in recent years in shares without par value. Until recently, all shares had a face or par value, and the amount of these issued is referred to as the capital of the company. Assuming shares were issued for cash at par, their value at that moment may correspond to their par value, but immediately operations are commenced two opposing forces get into action. One tends to increase the assets through earnings; the other to decrease them through expenses and losses. From time to time statements are prepared to see which of these forces has had the better of the struggle. Whichever has, the fact stands out that the value behind the shares is either greater or less than the face value, while the market value, being based largely on earning power, will be something still different. This indicates that the par value has very little to do with the real value of shares, but attention is drawn to it first. It was to get away from this condition that shares without par value were introduced. It recognizes the fact that a share with or without par value merely represents the proportionate interest in

the corporation. Up to the present, the majority of shares without par value have been common shares. The way is opening, however, for preferred shares of this kind that will be preferred to a definite amount as to principal.

For some years the provisions of the Dominion Companies Act required that the capital with which a company formed under it shall carry on business is the par value of the shares issued with a par value, plus the consideration received for the shares without a par value. Changes in this respect may take place shortly, but this would seem to be the ideal feature. Under some other statutes, there may be the same condition, or a provision that the capital shall consist of the par value of shares issued with a par value, plus a stated amount ($1.00 or more) for each share without a par value. This opens the way to the method of showing as capital only a part of what is received for no par shares, the balance being termed "paid in" or "capital" surplus. The stated or legal capital is the amount referred to as being shown as such in the books, and is the amount below which the assets may not be reduced through the payment of dividends. This latter feature, then, would seem to open the way for the possibility of having available an amount received from the issue of shares as a surplus that under certain conditions might be distributed. This calls for a very close study of the capital structure of a corporation.

While there are many other features that might be discussed under this subject, the above is intended to give a general idea and to draw the attention of cost accountants to their importance in relation to the application of the capital funds in a business enterprise and to their conservation.

JOINT MEETINGS IN TORONTO AND HAMILTON

ARRANGEMENTS are being made for our Toronto, Hamilton and Central Ontario Chapters to open the new season with joint meetings, the first in Toronto on Wednesday, October 1, and a later one in Hamilton on Wednesday, October 29. They will probably both be dinner meetings, commencing about 6.30, so that members from each of these Chapters will have time to attend without unduly breaking into the afternoon's work.

Details of the meetings are in the hands of the Directors of Toronto Chapter and Hamilton Chapter respectively. For the first meeting in Toronto, the intention is to mark the widening in the name and scope of our Society with a thorough discussion of the functions of the costing department and of the industrial engineering or production management departments, and their relation to the rest of the executive. The Hamilton meeting will likely deal with standard costs.

In 1926 and 1927 conventions of this Society were held in Toronto and Montreal respectively, but owing to distance the numbers attending from points outside the convention city were not large enough to make the meetings representative of our organization as a whole. The growth of the Society in recent years, with three chapters within convenient distance, now makes it possible to have successful joint meetings for these chapters at least.

Members in these chapters should hold these dates open for an instructive and sociable time. Chapter officers will assist in transportation arrangements.

Cost of Carrying an Account

WRITING in "Credit Monthly," Stanley Spurrier, C.P.A., brings out the following points on costs of carrying accounts:

In order to study the cost of carrying an account we must separate accounts into two general classes: the discounters and the non-discounters. It is only in connection with the latter class of account that there can be in any true sense a *carrying* cost. The discounters can be left entirely out of our discussion because, in considering the cost of carrying an account, it is not necessary to go into the cost of *handling* the account to the point where the invoice is charged to the customer. The cost of the operations necessary in the Order and Bookkeeping Departments to that point, has nothing to do with the cost of carrying the account.

Since the cost of carrying an account is very vitally affected by the determination of the maturity of the account, it is necessary first to definitely establish the due date, or maturity. Let us assume for example terms of 2 per cent. 10 days, net 30 days. The usual explanation of this is that the account is due in 30 days, but that a discount of 2 per cent is allowed if payment is made 20 days prior to the date due.

There has always been a difference of opinion as to the real nature of cash discount, what it accomplishes or is intended to accomplish. The theory of cash discount which has probably always had the largest following, is that it is an inducement offered the customer to secure payment of his account before it is due. This is in accordance with the explanation just made of the above terms. Keeping this theory in mind, and using the terms set out above, let us assume that the customer purchases merchandise to the amount of $100, and that he is so involved. If the customer pays the bill within 10 days, he remits only $98. He has thus been allowed $2 for the use of his $98 for 20 days. If this be true, then it is certainly a very exhorbitant interest.

The second theory is that the cash discount taken by customers is in reality a deduction from the sales price of the merchandise, and these discounts eventually find their way back as a charge against sales. That is, the customer is invoiced for $100 worth of merchandise, and sales account is credited for that amount. The customer pays the invoice within 10 days, and deducts a $2 discount. This is charged to Discount Account, but at the end of the fiscal period the total of the Discount Account is charged against sales in order to arrive at the net sales.

This theory seems also to have little to recommend it. In the first place, the amount of the sale is affected by the time of payment. If paid within 10 days the sale is actually $98; and if paid after 10 days is $100. Second, the difference of 2 per cent or even 1 per cent in the price of merchandise *merely* on account of a maximum of 20 days difference in time of payment is, I submit, entirely out of line.

The third theory, and to my mind the correct one, is that cash discount furnishes, in an unobjectionable way, the basis whereby the seller is compensated for carrying accounts receivable, including losses

on bad debts. In other words, it is not in reality a discount at all but a penalty. The application of this theory, considering our terms of 2 per cent 10 days, net 30 days, amounts to the following: When the customer is invoiced $100, the sale is actually $98, and the account is due within 10 days. If the account is not paid within 10 days, a penalty of $2 is added. This penalty not only takes care of the 20 days interest on the money which the customer owes, but also helps to cover other carrying costs, including a reserve for bad debts. If payment is made within 10 days, it is considered the same as a cash sale. Losses do not occur on the accounts of customers who discount their bills, but occur only among that class of customers which do not pay until after the due date. Therefore, those customers who wait until after the due date to pay their bills must for this purpose be put in one general class.

Costs After Due Date

I believe that we are justified in assuming that all costs in connection with the account after its due date are costs of carrying the account. But granting this assumption, our problem is by no means solved. There are certain expenses, such as interest on the account, costs in connection with sending out statements, etc., which I think we will probably all agree are carrying expenses. In fact, we might agree that all collection expenses should be considered as a part of the cost of carrying accounts and apportioned on some equitable basis to all accounts which run beyond due date.

There are other items, however, the disposal of which is not so simple. The salary of the Credit Manager and his assistants, and various other expenses in connection with his office must be considered. Should these total expenses be allocated to the cost of carrying the accounts, or should we allocate only that portion which bears the same ratio to the total as the portion of the time the Credit Manager and his assistants devote to the past due accounts and their collection?

The Credit Department is charged with the responsibility of determining the basis on which merchandise will be sold to customers—whether the customer must send cash with his order, whether the merchandise will be shipped to him C.O.D., whether shipments will be made on open account on the regular terms, or whether some special terms can be granted under the circumstances in the instant case. To determine these matters intelligently to the best interest of his firm and its customers, the credit executive and his assistants must keep in close touch with the customer's financial condition through the mercantile agencies and special reports. In addition to this, the trend of the customer's business must be followed as closely as the circumstances permit.

Obviously this function of the Credit Department is all performed before the charges are made on the books, so it would seem difficult under any principle of cost finding to find an adequate justification for including as a part of the cost of carrying accounts the portion of the cost of the Credit Department allocatable to the above function.

Other functions of the Credit Department, such as passing on merchandise returns and allowances, handling complaints, etc., would seem also to have little or nothing to do with the cost of carrying

accounts because there are many instances where customers who cause the Credit Department the most grief in connection with returns, allowances and complaints, are discounters.

Chief Purpose of Determining Carrying Costs

In the event the customer fails to pay his account when due, the Credit Department must use its best ingenuity to collect the account at the earliest possible date, keeping in mind the best interests of his house with regard to the retention of the good will and future business of the customer. This function of the Credit Department obviously would be chargeable as cost of carrying accounts.

It is of course important to know the cost in the aggregate of carrying accounts, and to hold that cost to the lowest possible figure consistent with their proper handling. But, after all, the chief value to be derived from any set of cost figures is the basis which it furnishes for the determination of the charge to be made for the product or the service. If the product or the service cannot be sold at a profit, then under all ordinary circumstances that line of product or service would be discontinued. In the case of accounts, this does not mean that the firm must change from a credit to a cash basis, but that it will discontinue insofar as is possible, all accounts which are not profitable accounts.

The credit executive *must analyze his costs thoroughly in order to determine the point at which an account becomes profitable.* The volume of the account is an important factor in determining this point. Certain items such as interest, possibility of loss from bad debts, collection fees, etc., bear a direct ratio to the size or volume of the account. Other items, such as mailing statements, writing collection letters, etc., bear only slight relation to the size of the account. The allocation of these latter items to the various accounts is largely a matter of judgment and no general rule can be formulated which will cover all the conditions.

The second item which enters into the allocation of the carrying expense to the various accounts is length of time the accounts run or the turnover. The allocation of most carrying costs bears a close relation to turnover. Interest is in direct ratio, while the possibility of loss from bad debts, collection letters, collection fees, etc., apply in a somewhat increasing ratio as the accounts become older. The allocation of carrying costs with relation to turnover is also largely a matter of judgment and must be determined on the basis of the best information available.

Briefly, then, the cost of carrying an account is made up of the expenses in connection with the accounts accruing after maturity—including interest, mailing statements, collection letters, telephone calls and telegrams, personal calls, adjustments and losses from bad debts—equitably allocated on the basis of volume of account, turnover and such other favors as in each case seem to be of sufficient importance to exert a perceptible influence.

Logically, terms of sale and cash discounts should be determined on the basis of the cost of carrying accounts. In fact, these matters are based largely on competition and custom. The credit executive may therefore fail to keep clearly before him the relative value of the various customers especially as between the so-called discounters and those who do not pay promptly.

COST OF CARRYING AN ACCOUNT

In the final analysis the all important thing is for the credit executive to be thoroughly informed as to what constitutes a profitable account. What is a profitable account?

It is not necessary for an account to be a discounter in order to be profitable. *An account that pays promptly in 30 days is more profitable to the house than a discounter buying the same amount of merchandise.* The difficulty is, however, that the non-discounter does not always pay promptly in 30 days.

Leaving out the matter of losses on bad accounts, extra work and expense in connection with sending out statements, collection letters, etc., *an account paid in four months is approximately as* profitable as if it had been discounted at 2 per cent. in 10 days. Many accounts which cause the Credit Manager a lot of grief because of slow payments are not entirely unprofitable to the house. This is especially true if interest is collected from the customer after the account is thirty days old.

AVERAGE COST OF AUTOMOBILE OPERATION

THESE figures are based on detailed cost records covering about 800 automobiles operated in various parts of the United States and an average of 11,000 miles per year.

Type of Car / Items	Light 4 Average CENTS per mile	Medium 4 Average CENTS per mile	Heavy 4 Average CENTS per mile	Light 6 Average CENTS per mile	Medium 6 Average CENTS per mile	Heavy 6 Average CENTS per mile
1. Gasoline at 20 cts. per gal.	1.34	1.14	1.31	1.36	1.52	1.42
2. Oil	.25	.17	.16	.18	.20	.17
3. Tires and Tubes	.60	.65	.70	.75	.80	.90
4. Maintenance	1.55	1.90	2.06	1.95	2.14	2.53
5. Depreciation	1.25	1.40	1.57	1.74	2.09	2.57
6. License	.11	.14	.20	.20	.24	.27
7. Garage at $4 per month	.44	.44	.44	.44	.44	.44
8. Interest at 6%	.27	.38	.55	.55	.71	.87
9. Insurance (fire, theft, tornado, liability)	.21	.20	.21	.21	.26	.28
Total	**6.02**	**6.42**	**7.20**	**7.38**	**8.40**	**9.45**
Annual mileage	11,000	11,000	11,000	11,000	11,000	11,000
Average miles per gallon gas	14.95	17.53	15.29	14.68	13.19	14.02

Cost of Operation of an Imaginary "Average" Automobile
(Annual Mileage of 11,000)

Item of Cost	CENTS per mile	Item of Cost	CENTS per mile
Gasoline	1.31	Garage at $4 per month	0.44
Oil	0.22	Interest at 6 per cent	0.36
Tires and tubes	0.64	Insurance (fire, theft, tornado)	0.21
Maintenance	1.72		
Depreciation	1.39		
License	0.14	**Total Cents per Mile**	**6.43**

COST LITERATURE

RECEIVED IN JULY

ACCOUNTING for Appreciation in Two Typical Cases Described. A. C. Littleton. The American Accountant, July, 1930.

Costing and Business Stabilization. R. B. Garnham, F.C.W.A. The Cost Accountant, June.

Accounting in the Aircraft Industry. John S. Woodbridge. National Association of Cost Accountants, July 1.

Relation Between Purchasing and Cost. Warren Wardman. National Association of Cost Accountants, July 1.

Contribution of the Industrial Engineer to Business Success. D. D. Fennell. Society of Industrial Engineers, June.

THE TREND OF PRODUCTION COSTS

COMMODITY prices have been slipping down in recent months. The Dominion Government index, based on 502 commodities, stood at 88.0 for June, compared with 89.9 for May, and with 93.5 for June last year. This index is a percentage of average prices in 1926. By main groups the figures are:

	June 1929	May 1930	June 1930
Food, Beverages and Tobacco	96.8	98.3	95.0
Other Consumers' Goods	91.2	86.7	86.4
All Consumers' Goods	93.4	91.3	89.8
Producers' Equipment	94.0	91.6	91.5
Building and Construction Materials	98.6	92.9	92.4
Manufacturers' Materials	92.3	85.2	82.8
All Producers' Materials	93.4	86.6	84.5
All Producers' Goods	93.5	87.1	85.2
All Commodities	93.5	89.9	88.0

Producers' goods are therefore substantially lower than a year ago, while the reduction in consumers' goods is less. Wholesale prices are used in all cases, so this means a saving in material costs, as compared with manufacturers' or wholesalers' selling prices.

The most important reductions in June were in the following: fresh foreign fruits, dried fruits, grains, flour and milled products, vegetable oils, tea, coffee, etc., live stock, meats and poultry, eggs, raw cotton, cotton yarn and thread, raw silk, silk yarn and thread, wool hosiery and knit goods, scrap iron, antimony, copper and brass, silver, tin and solder. Commodities to show important advances were: domestic fresh fruits, hides and skins, raw wool, and iron and steel pipe.